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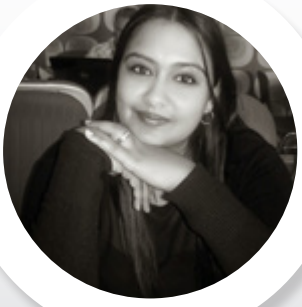

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Synthesis, characterization and bioactivity of quinoline derivatives

Quinoline is a nitrogen-containing heterocyclic aromatic structure with chemical formula C_9H_7N and is characterized by a benzene ring fused to a pyridine ring at two adjacent carbons. Quinoline and its derivatives have been the focus of considerable scientific and clinical interest due to their wide range of biological applications, such as antibacterial, antifungal, antimalarial, anticancer and immune depressing activities to name a few. The quinoline scaffold is prevalent in a variety of pharmacologically active synthetic and natural compounds. Twelve novel 2-Methyl quinolines were successfully synthesized by the Doebner-Miller reaction using crotonaldehyde and anilines. These quinolines were functionalised by oxidising the 2-methyl group with selenium dioxide and the resultant carbaldehyde used as an intermediate to a variety of syntheses. In this project, focus was on the synthesis of imines with various anilines, conversion of these imines to ß-lactams using phenoxy acetyl chloride. Characterization and structural elucidation of the novel synthesised molecules by NMR spectroscopy and mass spectrometry were performed. The synthesised quinoline derivatives were subjected to in-vitro screening for antimicrobial and anticancer activity. A structure-activity relationship was then carried out and the most active compounds were identified.

Biography

Amanda Perumal has completed her Master of Science in Biochemistry in 2016. She is currently pursuing her Doctoral degree in Synthetic Organic Chemistry at the University of KwaZulu-Natal, South Africa. She thoroughly enjoys her research and has keen interest in drug development targeting life threatening diseases.

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